UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,278	10/22/2003	Michael J. Wookey	30014200-1101	4919

58328 7590 07/06/2006		EXAMINER
SONNENSCHEIN NATH & ROSENTHAL LLP		HICKS, MICHAEL J
FOR SUN MICROSYSTEMS		
P.O. BOX 061080	ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/691,278	WOOKEY, MICHAEL J.
	Examiner	Art Unit	
	Michael J. Hicks	2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 October 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-22</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-3,5,7-10,12,14-17,19,21 and 22</u> is/are rejected.

7)☒ Claim(s) <u>4, 6, 11, 13, 18, and 20</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>22 October 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-22 Pending.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-22 rejected under 35 U.S.C. 102(a) as being anticipated by Pou (U.S.

Patent Number 6,188,423) in view of Tryon, III et. al. (U.S. Pre Grant Publication Number

2003/0004679 and referred to hereinafter as Tryon).

As per Claims 1, 8, 15, and 22, Pou discloses a method in a data processing

system having a program, computer readable medium, and data processing system the

method comprising the steps performed by the program of: generating a dataset having

at least one exposure level to failure of a computer-based system a description (i.e. *"The*

microprocessor 24 then begins the failure prediction routine by evaluating the loaded printing element or

dot element of the thermal printhead 22. Specifically, the microprocessor 24 determines the current

resistance value of the printing element at block 100 and stores this value in the memory 26 for later use.

At block 102, the microprocessor 24 determines whether the resistance of the printing element indicates

that it has failed. If the microprocessor 24 determines at block 102 that the printing element has not yet

failed, the microprocessor 24 proceeds to block 104 where it compares a resistance value or values

previously determined and stored at block 100 for that printing element to the current resistance that was

found at block 100 to determine a resistive trend." The preceding text excerpt clearly indicates that a

dataset is generated which includes at least one exposure level to failure (e.g. if the component has failed

or not). Alternately the resistance values that are used to calculate the trend that is generated with the

dataset may be viewed as levels of exposure to failure.) (Column 2, Lines 45-59) and a

corresponding rule identifier of a rule used to calculate the exposure level (i.e.

"Specifically, the microprocessor 24 determines the current resistance value of the printing element at

block 100 and stores this value in the memory 26 for later use. At block 102, the microprocessor 24

determines whether the resistance of the printing element indicates that it has failed." The preceding text

excerpt clearly indicates that the rule identifier is that of a resistance value vs. a failure threshold.)

(Column 2, Lines 45-59), the rule asynchronously receiving information about the computer-

based system and calculating the exposure level based on the received information (i.e.

"After checking all of the printing elements to be monitored by the routine of FIG. 2, the microprocessor

returns to a main routine, as will be apparent to one of ordinary skill wherein the main routine calls the

routine of FIG. 2 to determine and store new resistance values for the printing element(s) so that the

resistive trend can continue to be monitored." The preceding text excerpt clearly indicates that the rule

asynchronously receives information about the print heads (e.g. computer based system) and that the

exposure/failure levels are calculated based on the received information.) (Column 4, Lines 49-55);

comparing the generated dataset to a previously generated dataset by comparing the at

least one exposure level of the dataset to an at least one exposure level with the same

rule identifier in the previously generated dataset (i.e. *"A read/write memory is used to store*

previously determined resistive values of the individual printing elements sampled over time for use in

determining the resistive trend. Specifically, the microprocessor compares a current resistance value

determined for a particular printing element to one or more previously determined resistance values for

that particular printing element including the resistance value determined immediately preceding the

current value to determine the trend in the resistance for that printing element. The microprocessor

compares one or more characteristics of the resistive trend to predict whether an individual printing

element is failing." The preceding text excerpt clearly indicates that the current dataset (e.g. resistance

value) is compared to a previously generated dataset (e.g. resistance value) which was generated by the

same rule identifier (e.g. the rule identifier disclosed above) to establish a trend indicated component

failure.) (Column 1, Lines 40-52), **the previously generated dataset being associated with a**

known problem with the computer-based system (i.e. *"A read/write memory is used to store*

previously determined resistive values of the individual printing elements sampled over time for use in

determining the resistive trend. Specifically, the microprocessor compares a current resistance value

determined for a particular printing element to one or more previously determined resistance values for

that particular printing element including the resistance value determined immediately preceding the

current value to determine the trend in the resistance for that printing element. The microprocessor

compares one or more characteristics of the resistive trend to predict whether an individual printing

element is failing." The preceding text excerpt clearly indicates that previously generated dataset (e.g.

resistance value) is associated with a known problem (e.g. printing element failure).) (Column 1, Lines 40-

52); **and determining a problem with the computer-based system based on a number of**

exposure levels in the generated dataset matching exposures levels in the previously

generated dataset (i.e. *"If the microprocessor 24 determines at block 102 that the printing element*

has not yet failed, the microprocessor 24 proceeds to block 104 where it compares a resistance value or

values previously determined and stored at block 100 for that printing element to the current resistance

that was found at block 100 to determine a resistive trend. Preferably, the microprocessor 24 at block 104

compares the current resistance value to the resistance value determined at block 100 immediately

preceding the current value for the particular printhead. Alternatively, the microprocessor can compare

the current resistance values to a number of previously determined values for that element. If the

microprocessor 24 determines at block 106 that the resistive trend of the printing element is increasing,

the microprocessor 24 proceeds to block 108 to determine whether a characteristic of the increasing

resistive trend has exceeded predetermined boundaries. This determination may be made by comparing

the curve defined by the resistive trend for the printing element to a predetermined, previously stored

curve to determine whether the printing element is approaching failure. The difference between the curve

defined by the resistive trend and a predetermined curve can also be examined to determine whether the

printing element is approaching failure. For example, the average value and/or the maximum value and/or

the minimum value of the difference between the curves may be compared to predetermined values to

determine whether the printing element is approaching failure. Alternatively, this determination may be

made by comparing the slope or rate of change of the resistive trend for the printing element to a

predetermined slope or rate of change. The current resistance value of the printing element may also be

used as the characteristic of the trend where the resistance is compared to a reference value to

determine whether it is greater than the reference indicating approaching failure of the element. If a

characteristic of the resistive trend exceeds the predetermined boundaries as determined at block 108,

the microprocessor 24 predicts that the printing element is failing and proceeds to block 110." The

preceding text excerpt clearly indicates that printhead failure (e.g. a problem with the computer based

system) is calculated by comparing the exposure levels in the current dataset to those of previous

datasets and considering a trend which is based upon the comparison.) (Column 2, Lines 51-69; Column

3, Lines 1-24).

Pou fails to disclose that the determining of a problem includes calculating a

probability of the problem.

Tryon discloses that the determining of a problem includes calculating a

probability of the problem (i.e. *"The invention regards a system reliability or failure predicting*

apparatus and method that incorporates known information about system component failure into a system

model and uses the model with or without other acquired system data to predict the probability of system

failure." The preceding text excerpt clearly indicates that the determination of a system failure is a

probability of system failure.) (Abstract).

It would have been obvious to one skilled in the art at the time of Applicants

invention to modify the teachings of Pou with the teachings of Tryon to include that the

determining of a problem includes calculating a probability of the problem with the

motivation of creating a system reliability or failure predicting apparatus and method that

incorporates known information about system component failure into a system model

and uses the model with or without other acquired system data to predict the probability

of system failure including using probabilistic methods to create a system failure model

from the failure models of individual system components, predicting the failure of the

system based on the component models and system data, ranking the sensitivity of the

system to the system variables, and communicating a failure prediction. (Tryon, Abstract).

As per Claims 2, 9, and 16, Pou discloses outputting the determination of the

problem (i.e. *"If a characteristic of the resistive trend exceeds the predetermined boundaries as*

determined at block 108, the microprocessor 24 predicts that the printing element is failing and proceeds

to block 110. At block 110 the microprocessor 24 stores in memory the position of the printing element

predicted to fail. The microprocessor 24 then proceeds to block 124 to generate a warning message that

preferably includes the identity of the printing element approaching failure and/or its position." The

preceding text excerpt clearly indicates that a warning message (e.g. output of the problem) is generated

and output.) (Column 3, Lines 20-29).

Pou fails to disclose that the output includes the calculated probability of the

problem.

Tryon discloses that the output includes the calculated probability of the problem

(i.e. *"CPU 18 analyzes input 28 as directed by prediction analysis 30 to produce the output data 32.*

Output data 32 contains a prediction result 29 and possibly other information. Output data 32 is then

saved in memory device 34 while prediction result 29 is sent to computer control 20." The preceding text

excerpt clearly indicates that the prediction data (e.g. the calculated probability) is output.) (Column 5,

Lines 15-18).

It would have been obvious to one skilled in the art at the time of Applicants

invention to modify the teachings of Pou with the teachings of Tryon to include that the

output includes the calculated probability of the problem with the motivation of creating

a system reliability or failure predicting apparatus and method that incorporates known

information about system component failure into a system model and uses the model

with or without other acquired system data to predict the probability of system failure

including using probabilistic methods to create a system failure model from the failure

models of individual system components, predicting the failure of the system based on

the component models and system data, ranking the sensitivity of the system to the

system variables, and communicating a failure prediction. (Tryon, Abstract).

As per Claims 3, 10, and 17, Pou discloses outputting the determination of the

problem (i.e. *"If a characteristic of the resistive trend exceeds the predetermined boundaries as*

determined at block 108, the microprocessor 24 predicts that the printing element is failing and proceeds

to block 110. At block 110 the microprocessor 24 stores in memory the position of the printing element

predicted to fail. The microprocessor 24 then proceeds to block 124 to generate a warning message that

preferably includes the identity of the printing element approaching failure and/or its position." The

preceding text excerpt clearly indicates that a warning message (e.g. output of the problem) is generated

and output.) (Column 3, Lines 20-29).

Pou fails to disclose that the output includes a description of the problem.

Tryon discloses that the output includes a description the problem (i.e. *"CPU 18*

analyzes input 28 as directed by prediction analysis 30 to produce the output data 32. Output data 32

contains a prediction result 29 and possibly other information. Output data 32 is then saved in memory

device 34 while prediction result 29 is sent to computer control 20. Computer control 20 determines from

criteria contained in criteria, equations, models and reference data 14, or from criteria developed

separately, whether and how to signal user alert interface 26 based on prediction result 29. These criteria

could be incorporated into CPU 18 instead, so that CPU 18 determined whether to activate user alert

interface 26. User alert interface 26 is a number of individual components, with status, or alert indicators

for each as is necessary for the systems being analyzed for failure, such as, for example, a yellow light

signal upon predicted failure exceeding stated threshold value. A variety of user alert signal devices could

be appropriate for the specific situation." The preceding text excerpt clearly indicates that the output also

includes information which is used to control a user alert interface to signal a specific situation (e.g.

problem), therefore the output must contain information describing the problem for the user alert interface

to be able to determine specific problems specified by the output data.) (Column 5, Lines 14-31).

It would have been obvious to one skilled in the art at the time of Applicants

invention to modify the teachings of Pou with the teachings of Tryon to include that the

output includes a description of the problem with the motivation of creating a system

reliability or failure predicting apparatus and method that incorporates known

information about system component failure into a system model and uses the model

with or without other acquired system data to predict the probability of system failure

including using probabilistic methods to create a system failure model from the failure

models of individual system components, predicting the failure of the system based on

the component models and system data, ranking the sensitivity of the system to the

system variables, and communicating a failure prediction. (Tryon, Abstract).

As per Claims 5, 12, and 19, Pou discloses the computer-based system is at least one of a data processing system, a component of a data processing system, and a computer program (i.e. *"A microprocessor 24 controls the operation of the thermal printhead 22, which includes a plurality of printing elements 23, alternately referred to as dot elements. Specifically, the microprocessor 24 controls the printhead 22 to print data received from the host 28 and/or other input devices, not shown, such as a keyboard, barcode scanner, etc., in accordance with software stored in the memory 26. The memory 26 may include ROM and/or RAM, and/or a flash type memory, etc. The microprocessor 24 also monitors the condition of the thermal printhead to determine whether one or more printing elements 23 are likely to fail soon as discussed in detail below."* The preceding text excerpt clearly indicates that the computer based system (e.g. thermal print head system) is a component of a data processing system.) (Column 2, Lines 10-22).

As per Claims 7, 14, and 21, Pou discloses the received information comprises at least one of fault information, hardware configuration information, and software configuration information about the computer-based system (i.e. *"Specifically, the microprocessor 24 determines the current resistance value of the printing element at block 100 and stores this value in the memory 26 for later use. At block 102, the microprocessor 24 determines whether the resistance of the printing element indicates that it has failed."* The preceding text excerpt clearly indicates that the received information is a resistance value of a print head, which qualifies as both fault information (e.g. varying resistance is what leads to print head failure) or hardware configuration information.) (Column 2, Lines 48-51).

Allowable Subject Matter

4.   Claims 4, 6, 11, 13, 18, and 20 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As per Claims 4, 11, and 18, the prior art of record neither teaches nor suggests the limitation that the exposure level is a product of the exposure level and a confidence level which monotonically increases each time the exposure level is read in combination with all of the intervening claims.

As per Claims 6, 13, and 20, the prior art of record neither teaches nor suggests the limitation that the information about the computer based system is received through a subscription to said information.

Points of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Hicks whose telephone number is (571) 272-2670. The examiner can normally be reached on Monday - Friday 8:30a - 5:00p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (571) 272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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